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ABSTRACT

This paper examines the need for energy education, discusses classroom opportunities and quandaries for teaching about energy, and provides some suggestions for social studies educators. Two recent studies show that there is a real need for energy education. First, the Education Commission of the United States surveyed the energy knowledge and attitudes of young adults, ages 26 to 35. Among the facts revealed were that 50% of Americans surveyed do not know that coal is the largest fossil fuel in the United States; 86% do not know that coal is the primary fuel for the bulk of America's electrical energy. Second, the University of Florida surveyed a random selection of adults in Florida regarding energy issues. Sixty-nine percent saw the oil companies as major contributors to the energy problem, only 24% saw scarcity of oil, and only 13% saw the scarcity of natural gas as major contributors. These studies have brought pressure for energy education for children and adults. The paper then goes on to discuss classroom opportunities and quandaries with regard to energy education. For example, one opportunity is that all surveys and national energy plans show that conservation is the only realistic short term way to manage our energy problems. In this context, energy education in schools and communities might make a significant difference. One quandary posed is "How is the teacher to instruct about energy, leading to education and not to indoctrination?" The fear is that the quest for energy conservation will lead to teaching closed answers and habits as good and true. For social studies, the goal of energy education is moral sensitivity and action. Programming by social studies educators, K through adult, on energy issues should prepare us to face those issues and to assert truly human values in our mass, technological society. (Author/RM)

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THE ENERGY PROBLEM AND SOCIAL EDUCATION: SOME OPPORTUNITIES, QUANDARIES, AND GOALS

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Introduction. Today's audience needs no data in colorful graphs and charts to prove that there is an energy problem -- the daily media do that for us. Cars are smaller and wallets thinner. New four-letter words have slipped into our vocabularies, such as NUKE and OPEC. We are forgetting yesterday's slogans, like duPont's "Better living through chemistry" and GE's "Progress is our most important product." General Eisenhower's "Atoms for Peace" with the accompanying promise of cheap and abundant electrical energy seems a cruel hoax. We do not need energy charts and graphs to tell us that life in America is changing under the pressure of new energy realities. We know that the children populating the nation's schools will face these new energy realities with profound effects upon their lifestyles and their economic, environmental, and political systems.

While there are basic energy facts to be faced, and fundamental scientific concepts to be learned and applied, America's energy challenge is one of vision and determination, not resources. The debates over energy policy are colored by diverse ideologies and self-interests, more than the energy realities or the scientific concepts. The struggles of individual citizens to cope with new energy realities are stresses born of expectations, existing life-style patterns, and diminished personal efficacy.

Genuine concern about the choices which confront us, the priorities that shape our decisions, and the numbers of persons participating in the decision-making process is needed. We are too content to let others make decisions. We attend to real problems with gestures - cosmetic touches rather than revitalizing change. For ghettoes, we have clean-up days. When Sally can't read, we offer "functional literacy tests". For suburban sprawl, we dedicate flood-plains as "parks". For energy crises, we get posters, Presidential messages, and years of Congressional rhetoric. As Philip Slater (1970) noted:

> Escaping, evading, and avoiding are responses which lie at the base of much that is peculiarly American - the suburb, the automobile, the self-service store, and so on.

We have watched the gestures offered in response to the environmental movement and the energy crisis. Build a nature trail, drive 55 miles per hour, pick up litter, and turn down the thermostat. At the same time, litter piles up, energy waste is only surpassed by increasing per capita consumption, redwoods are cut before a park bill becomes law, national forests are stripped to hold down lumber prices, and Congress struggles for effective energy legislation. Robert A. Spivey (1977), President of Randolph-Macon College, held little hope for us in a recent speech on the future of urban life:

> Our Society is adolescent, privatistic, unable to distinguish the fad from the enduring, satisfied with the shoddy as long as it is cheap, entertained by novelty, unwilling to work up a sweat, content with technique rather than substance, and mesmerized either by emotional highs, such as sports, charismatic movements, and obsession with sex, or stupefied by routinized work, exemplified by TGIF.

Gestures are inadequate responses to the pressing energy crisis and other environmental issues. We stand at a crossroads where what we do and the course we take will have enormous impact upon the future. Amory Lovins (1976), writing about energy management scenarios, has pointed to two mutually exclusive routes. The route of hard technology means mounting massive capital and building large centralized energy generating plants, which will have the effect of centralizing economic and political power. The route of soft technology, equally demanding in terms of the use of scientific knowledge, means localizing energy development with less adverse environmental impact and greater community control. The costs are such that only one route may be taken; we have to make the hard choice soon.

Our energy policies are similar to the goals Lewis Mumford described for a technological society: There is only one speed, faster; one destination, farther away; one size, bigger; and one quantitative measure, more. The tendency in natural ecosystems is evolution for less production per unit of biomass, greater community stability, and toward higher efficiency in energy use. Our society is growing in the opposite direction.

The hard path relies on the expansion of centralized technologies like large power stations. The soft path develops renewable resources in a smaller, less demanding scale. Some feel the paths are mutually exclusive. Choice of path will influence the structure of society. Soft energy paths, says Lovins, differ from hard by:

--depending on renewable energy flows such as the wind, vegetation and the sun;

--being diverse so that energy supply comes from a variety of small sources tailored to needs;

--being easy to understand and use;

--being matched in scale and geographic distribution: windmills are used where there is steady and abundant wind, methane is used where digestible products are abundant;

--being matched in quality to end use. Using high grade energy (like electricity) to heat water is inefficient. A power station must use three units of fuel to get one unit of electricity, the rest is lost to the environment as heat. (LaHart, 1979)

Choices about hard and soft paths are but one set of difficult choices confronting us as citizens and as consumers. The basis for choice are not mainly matters of fact or scientific concept, but are matters of value, ideology, economics, and political process.

The Need for Energy Education. Just because Americans are experiencing and are affected by new energy realities does not mean that they understand them. Two recent studies show that there is a real need for energy education. First, the Education Commission of the United States surveyed the energy knowledge and attitudes of young American adults, ages 26 to 35. Some startling facts were revealed:

--50% of Americans surveyed do not know that coal is the largest fossil fuel in the U.S.;
--86% do not know that coal is the primary fuel for the bulk of America's electrical energy;
--68% believe that improved technology will make it possible to convert all energy released by burning fuel into useful work (a denial of the second law of thermodynamics);
--50% do not know that we import 30 to 60% of the oil we consume and 54% do not know that crude oil accounts for our largest percentage of energy consumed.
--77% do not know that heating water consumes more energy per year than refrigerating food, drying clothes, and lighting homes; and
—Although 95% know that auto emissions contribure heavily to air pollution, more than 50% say they would use a car to travel one-half mile. (Education Commission of the States, 1978).

Young Americans have little knowledge of the interconnections between pollution, power production, and household behavior, nor about the economics of these relationships. Such knowledge is critical for persons in energy conservation and citizens in public policy deliberations. But too few of our former students have the knowledge that it takes.

Second, the University of Florida surveyed a random selection of adult Floridians regarding energy issues. The survey shows that:

--69% saw the oil companies as major contributors to the energy problem--a villain was located! Texaco was not "Working to keep your trust" in Florida.
--67% saw "bad planning" as a major contributor--the technicrats had let us down! Science and government expert planners had failed.
--Only 24% saw scarcity of oil and only 13% saw the scarcity of natural gas as major contributors.
--36% clung to the notion that our energy problem was "the lack of adequate technology". A technological fix was expected, but apparently Union Carbide was not doing enough "To touch your life".

On the positive side, 50% saw "The amount of energy used by Americans" as a major contributor--consumption per capita. However, educators will not be pleased that there was an inverse relationship between: (1) income level and reported plans to conserve, (2) age and reported plans to conserve, and (3) educational level and reported plans to conserve. Poor people, young people, and uneducated people (in the formal sense) were taking action, while their more affluent, educated, and older brethren were planning to consume ever more energy. (Florida, Energy, and You, 1979).

These studies and others have revealed little about citizens' understanding of relationships (systems) among energy, environment, government, and lifestyles. What they do reveal has been that children and adults have little appreciation for these systemic relationships. In the same way, the studies have tended to ignore the ethical implications of current and desired patterns of energy consumption -- especially in the global context.

But even with these shortcomings, the studies have brought pressure for energy education for children and adults. Governments at the local, State, and Federal levels have responded with projects. Commercial sources from Chambers of Commerce to power companies have distributed instructional packets. And professional organizations and commercial publishers have prepared energy education materials for teachers and their students.

Most often, energy education is defined as the teaching of "basic" information and "basic" concepts, usually drawn from the natural and physical sciences. Also, energy education is defined as "energy conservation education" wherein the goal is not only learning facts and concepts but taking appropriate action as well. These definitions are narrow ones, ignoring socio-economic, political, and ideological factors which govern personal behavior and human systems.

Other justifications for energy education place a higher priority on energy understanding within social systems and social education. These employ one or more of the follwing kinds of arguments:

Educated Citizenry Justification: A basic premise of American democracy is that citizens with adequate skills and knowledge participate in making the decisions that affect them. Solutions to energy problems require a knowledge of, and participation in, the political process. Traditionally, education has served to equip citizens with the knowledge and skills needed to make such decisions and to take action.

Economic Justification: Energy education is needed so that citizens may make rational choices in their personal lives about saving energy costs and about public policy questions.

"Doing Good" Justification: Energy education offers the opportunity to create a more just and humane society. It can provide the

reducative process that will lead to a more environmentally sound life-style and a more equitable distribution of goods and services in the national and world community.

Problem-Solving Justification: Solving widespread energy and environmental problems can be undertaken by a well-educated citizenry. Since energy is so directly related to the conditions that sustain life and give it meaning, educational programs are needed to provide the techniques for solving the energy crisis.

"Take Care of Self" Justification: Energy education can teach people how to conserve energy and to make decisions to optimize their personal resources and well-being. Such learning will build personal responsibility and will help to protect personal effects.

Educated Person Justification: Society is beset with technological problems about resource use that require educated and inquiring minds. Energy education should be part of general education now and in the twenty-first century. A sound knowledge of energy concepts and issues should be expected of all educated people.

Career Education Justification: Many of today's students will find careers in energy industries (e.g., solar installation, energy audits, and energy-efficient construction) or in industries that depend on crucial energy decisions. Schools have a role in preparing students for these and other careers.

Stewardship Justification: Energy education, like environmental education, offers an opportunity for persons to learn a "common good" ethic, where the well-being of all people (including those yet unborn) is taken seriously in resource use and in the allocation of goods and services. If everything is connected to everything else, we need to learn those relationships and to use them. The welfare of all and responsibility to the posterity of our nation are central themes in this argument.

Apocalyptic Justification: We must learn the wise use of energy resources since there is such a limited supply of nonrenewable energy resources. National survival and the well-being of the world community depend upon effective and equitable use of energy to ward off resource depletion on the one hand and environmental disaster on the other. We need people who can stand at Armageddon and do battle for our survival.

Whether or not one concurs with all of the justification offered here for energy education programs in the schools, learning about energy is essential for the social education of all children whose lives will extend well into the twenty-first century. In responding to dwindling energy supplies, our technological advances may be spectacular. Legislation may force us into immediate conservation efforts. Pricing mechanisms may cause life-style changes. But in the long run, it is the knowledge, abilities, and personal commitments of

the people in a free society that will permit successful responses to the energy crisis.

Some Opportunities and Some Quandaries. It is useful to remember that the ancient Chinese wrote the word crisis by combining two characters: one meaning danger, the other meaning opportunity. In the energy "crisis" there are opportunities as well as dangers. So in energy education we face quandaries as well as classroom opportunities. Some of these are laid out in the following paragraphs in dialectical fashion.

I

OPPORTUNITY: All surveys and national energy plans show that conservation (reduced demand and increased efficiency) is the only realistic short-term way to manage our energy problems. In this context, energy education--in schools and communities--might make a significant difference.

QUANDARY: How is the teacher to instruct about energy, leading to education and not to indoctrination. Most energy issues are open ones, where persons of good will will disagree. Closing minds on open issues is psychological violence, at worst, and indoctrination, at best. Our fear is that our quest for energy conservation will lead us to teach closed answers and habits as "good" and "true". We will use students for energy conservation, rather than educate them. A good portion of the current teacher-produced energy education materials indoctrinate rather than educate, even though the authors have the best of intentions. [1]

II

OPPORTUNITY: There is no way that our students and their children will live the same energy-intensive life styles which we enjoy. Energy educators have an opportunity to shape the transition to the future. For example, we can explore the ingredients which make for quality of life, rather than imposing the traditional expectations of standard of living (a simple material criteria).

QUANDARY: Schools and teachers are part of the material standard of living mindset, into which we continue to socialize children. Schools, mass media, and parents reinforce the old equation that "The good life equals High consumption of goods and services." Until we change ourselves, and what we teach by our actions we cannot assist students in confronting their energy futures.

III

OPPORTUNITY: Our energy problem is an opportunity to raise some fundamental socio-political issues in the classroom. Amory Lovins tells us that, like Robert Frost, we are at a crossroad and we can go hard path or soft path. The energy choice is between centralist or decentralist political/economic/social systems. Here choices about the kinds of energy sources to be used are really political ones at the

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deepest levels. Electing to go to large-scale coal or nuclear power is to concentrate wealth and power and engage in the pursuit of a centralized political-economic order in the United States. Opting for localized energy sources is a soft path, tending to maximize personal and community autonomy.

QUANDARY: Civic education in the United States seems to be at a low point. It is not clear that civic educators are willing and able to deal openly with such fundamental systemic (and ideological) questions. They are controversial and schools have not been places to confront real controversy. We tend to deal with what is and what was much better than we raise open questions about what might be. [2]

IV

OPPORTUNITY: Energy issues provide an opportunity to study and to learn in holistic ways, reflecting the web of reciprocity within and between natural and social systems. Energy flows illustrate this interdependence. Energy problems are truly interdisciplinary.

QUANDARY: Educators are bound to our curriculum "disciplines" or subjects. We have to place energy education somewhere - meaning in a course or set of courses. It must have a niche. In North Carolina, it has been decided on high that energy education is science. Therefore, energy issues will be treated only in the scope and sequence of the science curriculum. What a loss - and how misleading for the children.

V

OPPORTUNITY: Energy education offers an opportunity to teach what will empower students to be competent and to get some control over their lives. Household management, hanging drapes, tuning cars, replacing hot water faucet washers, planting trees, and adjusting water heaters are but a few factors in personal energy competency.

QUANDARY: As educators we are too often caught up in an academic fallacy where talking overwhelms doing, and where knowing-what overwhelms knowing-how. Reciting oil production data for Saudi Arabia or the definitions of "fossil" and "quad" are deemed more important and valuable than knowing how to save on household energy costs. Remembering how a bill becomes a law is more valued in the classroom than learning how to organize the community to share a neighborhood compost heap, saving on chemical (energy-intensive) fertilizers. [3]

VI

OPPORTUNITY: Energy problems offer educators a curriculum concern which is truly global in scope and one where we can discuss global responsibilities.

QUANDARY: We tend to be so engrossed in our own energy appetites that we overlook the most significant global energy crisis -- the shortage of firewood, not fossil fuels for urban nations. The vast

array of classroom energy materials often play lip service to global energy issues and supplies, only to raise the real concern: "How can we Americans get more energy supplies from other nations?" [4]

VII

OPPORTUNITY: The energy problems of the United States offer educators an opportunity to deal once more with moral concepts: benevolence, altruism, the Common Good, responsibility, duty, obligation, and justice. President Carter used the oft quoted "moral equivalent of war" phrase to capture our sense of the Common Good. American sense of that Common Good seems to appear only with external threat--war. But Carter's appeal fell only on pundits and comedians ears, certainly not on the ears of Congresspersons. But there are other issues--issues of distributive justice (Who gets what and Why in the United States and the World). What is fair in the allocation and pricing of electricity? How can we justly distribute gasoline in times of shortage? What are the obligations of the comfortable to those not able to meet fuel oil bills? What is the proper role of government in compelling altruism and equity?

QUANDARY: Is there sufficient public support for a civic or secular morality of public affairs (what Walter Lippmann called "the public philosophy") which will allow teaching these issues in a pluralistic society's schools? Do teachers have the education and skills to undertake such a task?

VIII

OPPORTUNITY: How we resolve energy issues is fundamental to social harmony in our society. Historically we have eased disadvantaged groups into the mainstream by economic growth--making the economic pie larger so everyone got more. However, restricted energy supplies at high cost threaten this style of accommodation. Disadvantaged groups will be "taken care of" only by a redistribution of existing production in a steady economy or a declining one. There will be pain in such accommodation and cries of anguish, whether justified or not. Energy education can place such competition in context and prepare citizens to deal with such redistributions in public forums.

QUANDARY: The increasing conservatism of the American electorate, the increasing economic squeeze upon the middle class, and the increasing talk about violence and selfinterest make problematic the ability of schools to cope effectively with matters of social harmony. In a world of "Do your own thing" and "Help yourself first" school programs are hard pressed to make much of a difference. When these feelings are tied to divisions of race, religion, social, etc. they can be overwhelming and destructive.

It may be that the quandaries of energy education outweigh the opportunities. I hope not, but I am not certain. Alvin Toffler reminds us that education might change the future - our future together - and thus, may be worth a great collective effort:

> If we do not learn from history, we shall be compelled to relive it. True. But if we do not change the future, we shall be compelled to endure it. And that could be worse. (Toffler, 1972).

Changing the Future: Some Suggestions for Social Studies. Energy education in the general education of students is, of course, interdisciplinary in scope and content. However, the realities of extant school organization and curriculum force us to ponder the exact role of social studies educators in teaching about energy issues. VoTec teachers and others will handle career education and training. Home economics teachers are very active in teaching practical, personal consumption techniques for energy conservation and efficiency. Science educators have the knowledge and instructional competencies to treat those concepts and generalizations from the natural and physical sciences which few social studies educators of my acquaintance would have or be likely to develop over the short term. Thus, we must look to the special contributions of social studies educators, hoping all the while that they will be teamed with teachers in these other competency areas.

Social studies educators lay claim to civic education, to economic education, and to those dimensions of personal development having to do with self-understanding and moral/community development. These are certainly adequate bases for an important role in energy education. One could make a case for the importance of economic/consumer education linked to energy issues in social studies. That is obvious. One could also make a case for political science or civics linked to energy issues in social studies. Educators in our field have the knowledge and instructional competence, and the traditional concern, to do this well. The earlier discussion of hard and soft paths has reenforced the place of economic and political science knowledge and action opportunities in energy education. However, there is a major social studies concern which is not so obvious in its relationship to energy education: Moral Education.

Consumer decisions about energy consumption and conservation have a moral dimension. All energy public policy decisions have a moral component. Social studies educators in recent years have renewed a traditional concern for moral development and a commitment to social justice and a public philosophy.

For social studies, the goal of energy education is not simply to have people turn off lights. The goal is moral sensitivity and action. People who are morally aware will recognize the error of wasting scarce and needed resources and turn off unused lights without someone else's "good reasons". Much of energy education has been rather paternalistic, trying to communicate "good beliefs and values" for others to adopt for "their own good". This may "educate" children, but certainly it does not "educate" adolescents and adults. Such approaches tend to retard the development of people as functionally

autonomous moral agents -- it helps to keep them dependent upon others' "good judgements" rather than enabling them to develop their own commitments and competencies.

Hard knowledge from the natural and social sciences can be used to inform people as they develop, or redevelop, the following components of a moral system: [6]

1. Prudential Rules: Self-interest or personal welfare considerations (How should I take care of myself? Why should I?)
2. Rules Regarding Benevolence: Altruistic considerations (When and how should I sacrifice self-interest for the welfare of others?)
3. Principles Regarding Human Obligations:
   (a) Moral Duties: duties springing from commitment to personal/cultural ideals such as fairness truthtelling, respect for property, caring, etc.
   (b) Human Rights: springing from our sense of what it means to be human - or "life" - such as rights to basic welfare (life, health, food, identity, etc.) and right to freedom and dignity (power over life and mind, self-development, decision-making participation, etc.). It should be noted that human rights claims are universal and override our duties, benevolence, and self-interest considerations.

Moral principles are tied together by religious-philosophical ideals. Thus, as hard knowledge is used to inform the development of moral principles, so that knowledge may also be used to reform our religious-philosophical beliefs to confront the new realities of life in our time. How does the old concept of justice yield principles for handling the rising cost of energy for the poor and disinherited? How does the traditional concept of responsibility guide people burning coal to generate electricity for their air conditioners or importing vital resources from Third World societies?

Individual and Group Ethics. When President Carter announced his energy plan, he found it difficult to develop a "common good" concept that would touch the moral fiber of Americans. The best he could do was to borrow William James's "The moral equivalent of war". Americans have adopted a distributive ethic (Who gets what and why?) over an aggregative ethic based on the common good. Environmental issues, and now energy issues, are basically "common good" issues; issues which our moral/ethical conceptions do not prepare us to handle. Our core civic values are liberty and equality, both individualistic in nature. We assess the health of our society by the quantity of equality or liberty. Individualism functions as a barrier to effective reflection on the common good.

Our original conception of justice (equality and liberty) assumed a community of people who were engaged in a common life. Individuals in the community had a sense of dignity and a set of roles

to play, each with honor. People were bound together by a system of shared values and regard for one another. But, somehow in our growth, we have turned these ideals and feelings into an individualism that means enhancing our own estate to the limit of our power. We define ourselves by our personal right and opportunities, not by our debts and legacies. Hence, the President has no symbols or public philosophy to appeal to in his request for curbing individual self-interest for the common good.

Energy educators have, in their efforts, felt the same perplexity. To correct this situation, it seems that we must help in the reestablishment of civic idealism. Edward Schwartz (1976), president of the Institute for the Study of Civic Values, has urged educators to help replace individualism, privatism, hierarchy, and obedience, with cooperation, equality, and participation. Education can restore a sense of community and a covenanted patriotism, using the principles of the Declaration of Independence and Constitution in light of current realities. Reviving the ideals in these documents, now only viewed under glass at the National Archives, provides the common body of sentiments to legitimatize energy policies that make sense for the future. Alexis de Tocqueville (1840), traveling in America during the 1830's, grasped the essence of the oldtime American disposition:

> The American moralists do not profess that men ought to sacrifice themselves for their fellow creatures because it is noble to make such sacrifices, but they boldly aver that such sacrifices are as necessary to him who imposes them upon himself as to him for whose sake they are made . . . They do not deny that every man may follow his own interest, but they endeavor to prove that it is in the interest of every man to be virtuous . . . The principle of self-interest rightly understood produces no great acts of self-sacrifice, but it suggests daily small acts of self-denial . . . It disciplines a number of persons in habits of regularity, temperance, moderation, foresight, self-command.

The "principle of self-interest rightly understood" may once again function for us in energy and envrionmental matters. It does not require the great change in moral thinking of other conceptions of the common good (e.g., Marxist, socialist) and stands well within the American tradition. The principle of self-interest rightly understood is buttressed by three sentiments:

1. Mutuality: A recognition of Joseph Wood Krutch's dictum that "We are all in this together," and Albert Schweitzer's "fundamental fact of human awareness . . . that I am life that wants to live in the midst of other life that wants to live".

How is everything related to everything else? And how do I/we fit in?

2. Reciprocity: A recognition that other people and life forms have needs and interests that must be considered as one makes decisions, for we live in a web of social and natural reciprocity.

Who am I? Who are we? How shall we live amidst other life forms?

3. Altruism: A recognition that my own/our own interests must be moderated to ensure the survival and fulfillment of others as individuals or as a society.

What do I/we want? And what are our obligations as human beings?

Energy education need not focus first on ways to save energy or arguments for or against nuclear energy. Instead educators can use inquiry and hard knowledge to foster the social and personal development of individuals as moral agents in interdependent natural and social communities. The general goal of such education is to facilitate the development of personal lifegoals (ideals) that are actualized in a satisfying lifestyle and that include as a minimal expectation of moral excellence: (a) respect for the dignity of persons, as an expression of mutuality or community; (b) equality, wherein each other person's needs and interests are considered equal to one's own; (c) reciprocity, wherein we recognize our mutual interdependence in a shared community with all life forms; and (d) willingness and competence to take action in light of these moral commitments. The general goal implies a set of nine sub-objectives:

1. Development of a personal identity based upon a sense of community with others and recognizing one's debts to those others.
2. Development of personal awareness of one's interests, needs, feelings, and life situation within a community of others.
3. Development of moral sensitivity and empathy for others' perspectives and needs, taking a long-term view of "others" that recognizes the interests, needs, and rights of persons yet to be born and enter the human and biotic communities that we leave for them.
4. Development of factual knowledge and inquiry skills that permit understanding of life situations, life systems, and issues.
5. Development of value concepts and ethical principles as rational standards for moral excellence.
6. Development of the imagination and perspective that yield the ability to translate knowledge and moral principles into realistic and appropriate judgments and actions.
7. Development of citizen participation skills that provide competency in community life and political action.
8. Development of the volitions (will, motivation) to confront issues, and to take action in trying life situations.

9. Development of life-goals and a lifestyle that blend one's moral perspective, skills, principles, and commitments into patterns of reflection and action within communities of others. (Allen and LaHart, 1979).

Conclusion. Programming by social studies educators, K through adult, on energy issues should prepare us to face those issues and to assert truly human values in our mass, technological society. We need to rediscover those core values of our civic tradition and apply them to today's realities, using knowledge from the natural and physical sciences. The energy catastrophies of our time are opportunities to correct the "gestures" we call "reform" and the privatism that never seems to satisfy us. Our energy problems are not threats to American materialism, but challenges to a better life in a better community of fellows. As Kenneth Clark (1970) observed:

> ...civilization requires a modicum of material prosperity -- enough to provide a little leisure. But far more, it requires confidence -- confidence in the society in which one lives, belief in its philosophy, belief in its laws, and confidence in one's own mental powers.... Vigor, energy, vitality....

Notes

1 For a discussion of indoctrination in energy education, see Allen + Litke,1979.

2 President Carter's concern about the future planning and response time in Western democracies is discussed in Robert Heilbroner's An Inquiry into the Human Prospect, 1975.

3 See Allen and Kochan, in press, for a Florida survey of energy educators on goals for adult basic education energy studies. The academic fallacy was reflected in the responses of 70 randomly selected energy educators.

4 Notable exceptions are the materials produced by the National Science Teachers Association's Project for an Energy-Enriched Curriculum, Washington, D.C., and recent units prepared for the Indiana State Department of Public Instruction, Indianapolis, Indiana.

5 Two excellent units illustrate this. On economics see Energy Conservation as an Investment Choice (NSTA/PEEC, Washington, D.C.). On political processes, see How a Bill Becomes a Law to Conserve Energy (NSTA/PEEC, Washington, D.C.).

6 The relationship between scientific concepts, energy issues, and ethics is illustrated with many ethical decision-making situations in Allen, Energy and Ethics, 1980.

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